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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/721,212	11/25/2003	Robert W. Turner	BO1 - 0184US	5522

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EXAMINER

SMITH, JEFFREY S

ART UNIT	PAPER NUMBER
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2624

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/06/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/721,212	Applicant(s) TURNER ET AL.	
	Examiner Jeffrey S. Smith	Art Unit 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 05 February 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 February 2007 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Information Disclosure Statement

1. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

Requirement For Information

2. Applicant and the assignee of this application are required under 37 CFR 1.105 to provide the following information that the examiner has determined is reasonably necessary to the examination of this application.

In response to this requirement, please provide a copy of the solar illumination algorithm from the Landsat-7 Science Data User's Handbook discussed on pages 5-6 of the application.

In response to this requirement, please state whether any search of prior art was performed. If a search was performed, please state the citation for each prior art collection searched. If any art retrieved from the search was considered material to demonstrating the knowledge of a person having ordinary skill in the art to the disclosed, please provide the citation for each piece of art considered and a copy of the art.

For example, if a search for the claimed solar illumination correction or the claimed atmospheric correction was performed in co-pending U.S. Application Number 10/611,757 filed June 30, 2003 or in co-pending U.S. Application Number 10/019,459 filed December 26, 2001, please disclose the results of the search. Also, if the claimed solar illumination correction or the claimed atmospheric correction are disclosed or claimed in one or more other patents or patent applications filed by any of the inventors or owned by the assignee, please disclose this information.

This requirement is an attachment of the enclosed Office action. A complete reply to the enclosed Office action must include a complete reply to this requirement. The time period for reply to this requirement coincides with the time period for reply to the enclosed Office action.

Drawings

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the spatial comparator, image corrector, and spectral corrector of claim 9 as amended must be shown or the feature(s) canceled from the claim(s). Also, the new structural features of claims 10-12 and 17 must be shown or the features canceled from the claims. No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate

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prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

4. The attempt to incorporate subject matter into this application by reference to the atmospheric correction performed by cloud cover assessment described in U.S.

Application Number 10/019,459 is ineffective because subject matter essential for enablement of the claimed invention cannot be incorporated by reference.

5. The amendment filed February 5, 2007 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added

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material which is not supported by the original disclosure is as follows: The new structural elements in claims 9-12 and 17 as amended.

Applicant is required to cancel the new matter in the reply to this Office Action.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 1-24 and 30-31 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claims 1-24 and 30-31 include performing an atmospheric correction. The disclosure shows the words atmospheric correction in box 206 of Figure 6. However, this does not enable one of ordinary skill in the art to make and use the claimed atmospheric correction. The disclosure further states that the atmospheric correction is performed by a cloud cover assessment described in co-pending U.S. Application Number 10/019,459. However, the co-pending application does not disclose atmospheric correction.

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8. Claims 9-12 and 17 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 9-12 and 17 recite structural elements that are not disclosed in the application as originally filed.

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 17-24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 17 "the spatially matched images" lacks antecedent basis.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. Claim 25 is rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,995,681 issued to Lee et al. ("Lee").

For claim 25, Lee discloses a user interface comprising a first component for displaying one of the satellite images (display device 25), a second component for selecting a landmark from a database of landmarks located within a geographic area common to the plurality of satellite images (see ground control points 27 discussed at column 1 lines 52-61 which together are "a database of landmarks" and library of images 130 discussed at col. 4 lines 58-60 which is a database of images having landmarks); a third component for adjusting the displayed satellite image to present the selected landmark (see column 1 lines 52-61); and a fourth component for selecting a control point associated with a visual feature that is approximately adjacent to the selected landmark (see column 1 lines 52-61 and col. 5 lines 16-34).

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claims 26-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee in view of Ogawa.

Lee discloses the elements of base claim 25.

For claim 26, Ogawa discloses that the building information includes location information.

For claim 27 Ogawa discloses that the visual feature includes a field, which obviously can be a football field.

It would have been obvious to one of ordinary skill in this art at the time of invention to set the control points of Lee using school building information for the purpose of aligning the multiple images of the same geographic location as taught by Ogawa at column 5 lines 33-36.

14. Claims 28-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee in view of Lindgren.

For claim 28, Lee discloses the elements of base claim 25. Lindgren discloses setting multispectral bands to equalized resolution levels as shown in Figure 4. It would have been obvious to one of ordinary skill in this art at the time of the invention to equalize the resolution levels of the images as shown by Lindgren when setting control points during the co-registration process of Lee for the purpose of reducing misregistration of the images as taught by Lindgren in the abstract.

For claim 29, setting the resolution level to a highest level is shown by Lindgren in Figure 4.

15. Claims 1-2, 9-10 are rejected under 35 U.S.C. 103 as being anticipated by U.S. Patent No. 6,097,835 issued to Lindgren ("Lindgren") in view of U.S. Patent No. 7,171,912 issued to Fraisse et al. ("Fraisse").

For claim 1, Lindgren discloses spatially matching images produced by different sensors (see column 6 lines 2-3 describing spatially overlapping multispectral and panchromatic images) and spectrally correcting one or more of the spatially matched images based on one or more of the other images (see column 2 lines 25-29).

Lindgren does not disclose performing at least one of a solar illumination correction and an atmospheric correction on the spatially matched images.

Fraisse discloses performing at least one of a solar illumination correction and an atmospheric correction on the spatially matched images (see column 2 line 47- column 7 line 21).

It would have been obvious to one of ordinary skill in the art at the time of the invention to perform the atmospheric correction of Fraisse with the pan sharpening method of Lindgren to increase the image resolution as taught by Fraisse at column 7 lines 19-22.

For claim 2, Lindgren discloses equalizing the resolution levels in the images and the means for equalizing the resolution levels (see column 2 lines 29-31).

For claim 9, the spatially matching and spectrally correcting are defined by the specification as computer software that is executed by a processing system, which is disclosed by Lindgren, and the atmospheric correction is disclosed by Fraisse.

For claim 10, Lindgren discloses equalizing the resolution levels in the images and the means for equalizing the resolution levels (see column 2 lines 29-31).

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16. Claims 3, 11, 17, 20-21, 23-24, and 30-31 are rejected under 35 U.S.C. 103 as being anticipated by Lindgren in view of Fraise and U.S. Patent No. 5,995,681 issued to Lee et al. ("Lee").

For claim 3, Lindgren and Fraise disclose the elements of base claims 1 and 2.

Lindgren and Fraise do not explicitly disclose setting a plurality of control points in the images based on landmark information and aligning the images based on the set control points.

Lee discloses setting a plurality of control points in the images based on landmark information and aligning the images based on the set control points as shown in Figure 1.

It would have been obvious to one of ordinary skill in this art at the time of this invention to align the panchromatic and multispectral images of Lindgren using the control points obtained from a survey or reference image of the geographical area of interest in order to co-register the images as taught by Lee in columns 1-2 and figure 1.

For claim 11, Lindgren and Fraise disclose base claims 9 and 10. Lee discloses setting a plurality of control points in the images based on landmark information, aligning the images based on the set control points, and aligning images based on latitude and longitude as discussed in column 1 lines 48-50 and shown in Figure 1. It would have been obvious to one of ordinary skill in this art at the time of this invention to align the panchromatic and multispectral images of Lindgren using the latitude, longitude, or control points obtained from a survey or reference image of the

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geographical area of interest in order to co-register the images as taught by Lee in columns 1-2 and figure 1.

For claim 17, Lindgren discloses spectrally correcting one or more of the spatially matched images based on one or more of the other images (see column 2 lines 25-29). Fraisse discloses performing at least one of a solar illumination correction and an atmospheric correction on the spatially matched images (see column 2 line 47- column 7 line 21). Lee discloses a system for aligning a plurality of satellite images 12 from different sources (such as airborne or spaceborne camera or radar systems, diagrammatically illustrated at 10 and 11, respectively in Figure 1), user interface device 24, a display device 25, a database for storing landmark information (the workstation 24 stores reference images 29 in its memory), a processor coupled to the user interface device, the display device, and the database, the processor including a first component for instructing the display device to present one of the satellite images based on the stored landmark information, a second component for setting control points in the satellite images based on a signal generated by the user interface, and a third component for aligning the images based on the set control points (see column 1 line 52-column 2 line 10 which discusses a skilled operator at an image processing workstation 24 examine the display 25 of the working digital image 16 to locate ground control points 27. The ground control points are obtained from stored landmark information such as a survey of the area of interest. By clicking on a cursor 31 that has been manually positioned over a control point in the working image, the operator

supplies an offset which is compared with the actual coordinates of the ground control point in the reference image 29).

For claim 23, Lindgren discloses setting multispectral bands to equalized resolution levels as shown in Figure 4.

For claim 24, setting the resolution level to a highest level is shown by Lindgren in Figure 4.

For claim 30, Lindgren and Fraise disclose spatially matching images produced by different sensors (see Lindgren column 6 lines 2-3 describing spatially overlapping multispectral and panchromatic images) spectrally correcting one or more of the spatially matched images based on one or more of the other images (see Lindgren column 2 lines 25-29), and performing at least one of a solar illumination correction and an atmospheric correction (see Fraise column 7 lines 19-22). Lee discloses setting a plurality of control points in the images based on landmark information and aligning the images based on the set control points as discussed in columns 1 and 2 and shown in Figure 1.

For claim 31, Lindgren extracts radiometrically stable data, aggregates the data from a first image, compares the aggregated data to radiometric data from a second image, generates a correction factor, and applies the correction factor to the radiometric data of the second image as shown in figures 1 and 2.

17. Claims 4-8, 12-16, 18-19, 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lindgren in view of Fraise and Lee as applied to claims 3 and 11

above, and further in view of U.S. Patent No. 5,864,632 issued to Ogawa et al. ("Ogawa").

For claim 4, Lindgren, Fraisse and Lee disclose the elements of base claim 3.

Lindgren, Fraisse and Lee do not explicitly disclose determining locations of a plurality of landmarks, presenting a selected landmark, setting a control point approximately adjacent to the selected landmark, and repeating until a threshold number of control points are set.

Ogawa in step 202 of figure 2, figure 7 and column 6 lines 32-38 shows determining locations of a plurality of landmarks, presenting a selected landmark, setting a control point approximately adjacent to the selected landmark, and repeating until a threshold number of control points are set.

It would have been obvious to one of ordinary skill in this art at the time of invention to set control points in the images of Lindgren, Fraisse and Lee adjacent to selected landmarks as shown by Ogawa for the purpose of aligning multiple images of the same geographic location as taught by Ogawa at column 5 lines 33-36.

For claims 5-6, Ogawa in figure 7 shows the landmarks include a building and a field. Given the fact that the neither the claims nor the specification establishes a critical distinction between a building and a school building, or a field and a football field, one of ordinary skill in the art would obviously recognize that the building of Ogawa can be a school building and the field can be a football field.

For claims 7-8, Lindgren discloses setting the multispectral resolutions to an equalized resolution in the abstract and figure 4.

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For claim 12, Lindgren, Fraisse and Lee disclose the elements of base claim 11. Ogawa in step 202 of figure 2, figure 7 and column 6 lines 32-38 shows determining locations of a plurality of landmarks, presenting a selected landmark, means for setting a control point approximately adjacent to the selected landmark, and repeating until a threshold number of control points are set.

For claims 13-14, Ogawa in figure 7 shows the landmarks include a building and a field.

For claims 15-16, Lindgren discloses setting the multispectral resolutions to an equalized resolution in the abstract and figure 4.

For claim 18, Lindgren, Fraisse and Lee disclose the elements of base claim 17. Ogawa in figure 7 discloses the landmark includes a building, which can be a school. It would have been obvious to one of ordinary skill in this art at the time of invention to set the control points of Lee using school building information for the purpose of aligning the multiple images of the same geographic location as taught by Ogawa at column 5 lines 33-36.

For claim 19 Ogawa discloses that the building information includes location information.

For claim 22 Ogawa discloses that the visual feature includes a field, which obviously can be a football field.

Response to Arguments

18. Applicant's arguments filed February 5, 2007 with respect to claims 25-29 have been fully considered but they are not persuasive.

Applicant states that Lee discloses that "an operator may locate ground control points, but Lee does not teach that an operator may select a landmark from a landmark database."

However, Lee states that "ground control points are those points whose actual geographical coordinates are known with a relatively high degree of accuracy (e.g., to within one to five meters, or less), such as may be obtained from a survey of the area of interest or from an archival 'reference' image 29 of the geographical area of interest." The "archival 'reference' image 29 of the geographical area of interest" is stored in "a library 130 of images." The landmark, which is geographical information, is formed from "the coordinates of boundary corners of the working image." This is the definition of a landmark. The geographical information of the images in library 130 is therefore a database of landmarks.

19. Applicant's arguments with respect to claims 1-24 and 30-31 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

20. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

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§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

21. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey S. Smith whose telephone number is 571 270-1235. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jingge Wu can be reached on 571 272-7429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

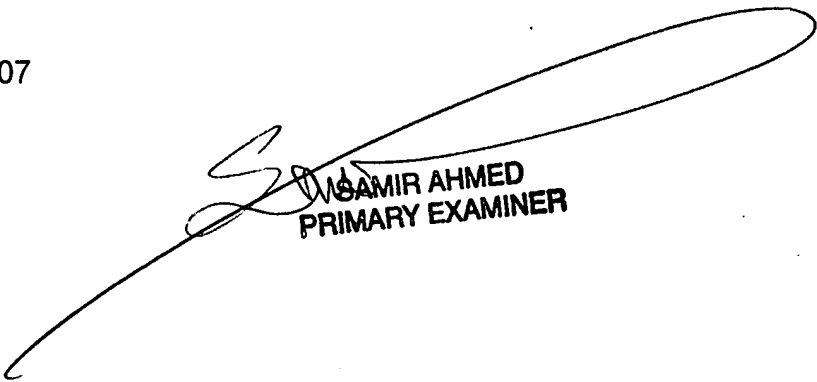
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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JSS

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March 1, 2007



SAMIR AHMED
PRIMARY EXAMINER